clarion

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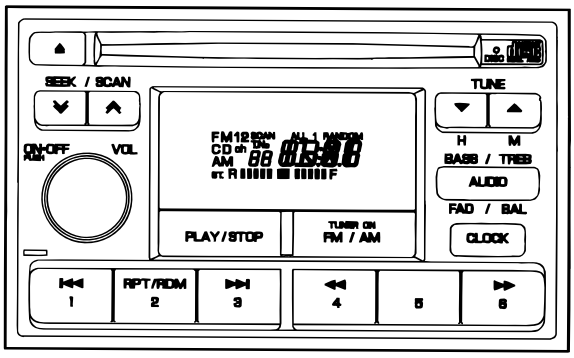
# Service Manual




NISSAN
Automobile Genuine
AM/FM Radio CD Player

**Model PN-2218I**
(Genuine No. 28185 9E000
ID No. CY516)

## ■SPECIFICATIONS

### Radio section

Tuning system: PLL Frequency synthesizer system
Receive range: AM 530kHz to 1,710kHz
FM 87.75MHz to 107.9MHz
Intermediate frequency:
AM 450kHz
FM 10.7MHz
Quieting sensitivity: AM Less than 32dBμ(at 20dB S/N)
FM Less than 11dBμ(at 30dB S/N)
Separation: FM More than 20dB
Auto tuning stop sensitivity:
AM 32±8dBμ
FM 27±8dBμ

### CD section

Disc size: Compact disc 12cm or 8cm
S/N ratio: More than 74dB
(1kHz,IHF-A,5W output power)
Separation: More than 50dB
(1kHz,0.5W output power)
Distortion: Less than 0.4%
(1kHz,0.5W output power)

### General

Load impedance: 4Ω/CH
Output power: 15W×4
Power supply voltage:
DC13.2V(10.8V to 15.6V)
Negative ground
Consumptive current:
Less than 10A
Dimensions(mm): 180(W)×108(H)×160(D)
Weight: 1.5kg

※ Specifications and design are subject to change without notice for further improvement.

## ■COMPONENTS

PN-2218I-A

| | |
|---|---|
| Main unit | 1 |

## ■ To engineers in charge of repair or inspection of our products.

Before repair or inspection,make sure to follow the instructions so that customers and Engineers in charge of repair or inspection can avoid suffering any risk or injury.

1. Use specified parts.
   The system uses parts with special safety features against fire and voltage.Use only parts with equivalent characteristics when replacing them.
   The use of unspecified parts shall be regarded as remodeling for which we shall not be liable.The onus of product liability (PL) shall not be our responsibility in cases where an accident or failure is as a result of unspecified parts being used.
2. Place the parts and wiring back in their original positions after replacement or re-wiring.
   For proper circuit construction,use of insulation tubes,bonding,gaps to PWB,etc,is involved.The wiring connection and routing to the PWB are specially planned using clamps to keep away from heated and high voltage parts.Ensure that they are placed back in their original positions after repair or inspection.
   If extended damage is caused due to negligence dur-

ing repair,the legal responsibility shall be with the repairing company.

3. Check for safety after repair.
   Check that the screws,parts and wires are put back securely in their original position after repair.Ensure for safety reasons there is no possibility of secondary ploblems around the repaired spots.
   If extended damage is caused due to negligence of repair,the legal responsibility shall be with the repairing company.
4. Caution in removal and making wiring connection to the parts for the automobile.
   Disconnect the battery terminal after turning the ignition key off.If wrong wiring connections are made with the battery connected, a short circuit and/or fire may occur.If extensive damage is caused due to negligence of repair,the legal responsibility shall be with the repairing company.
5. Cautions regarding chips.
   Do not reuse removed chips even when no abnormality is observed in their appearance.Always replace them with new ones.(The chip parts include resistors,capacitors,diodes,transistors,etc).The negative pole of tantalum capacitors is highly susceptible to heat,so use special care when replacing them and check the operation afterwards.
6. Cautions in handling flexible PWB
   Before working with a soldering iron,make sure that the iron tip temperature is around 270℃.Take care not to apply the iron tip repeatedly(more than three times)to the same patterns.Also take care not to apply the tip with force.
7. Turn the unit OFF during disassembly and parts replacement.Recheck all work before you apply power to the unit.
8. Cautions in checking that the optical pickup lights up.
   The laser is focused on the disc reflection surface through the lens of the optical pickup. When checking that the laser optical diode lights up,keep your eyes more than 30cms away from the lens.Prolonged viewing of the laser within 30cms may damage your eyesight.
9. Cautions in handling the optical pickup
   The laser diode of the optical pickup can be damaged by electrostatic charge caused by your clothes and body.Make sure to avoid electrostatic charges on your clothes or body,or discharge static electricity before handling the optical pickup.

9-1. Laser diode
   The laser diode terminals are shorted for transportation in order to prevent electrostatic damage.After replacement,open the shorted circuit.When removing the pickup from the mechanism,short the terminals by soldering them to prevent this damage.

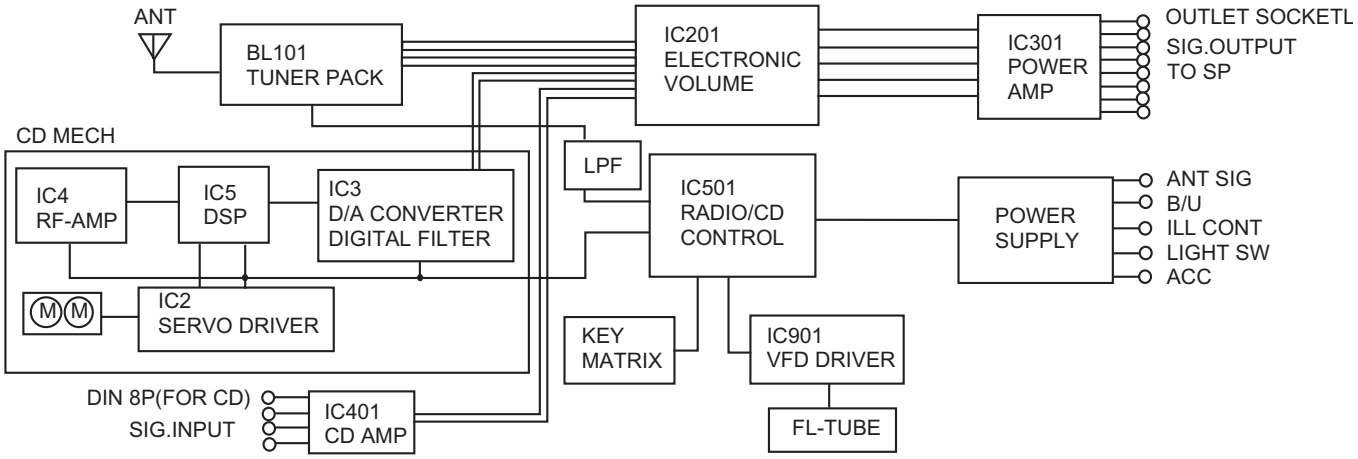
9-2. Actuator
   The actuator has a powerful magnetic circuit.If a magnetic material is put close to it.its characteristics will change.Ensure that no foreign substances enter through the ventilation slots in the cover.

9-3. Cleaning the lens
   Dust on the optical lens affects performance.To clean the lens,apply a small amount of isopropylalcohol to lens paper and wipe the lens gently.

## ■ADJUSTMENTS

| Item | Procedure | Measuring instrument |
|---|---|---|
| Clock accuracy | 1. Turn off and on the ACC switch,while holding CD-EJ button and Power button.Repeat it four times slowly.<br>("CD ALL 1 RANDAM" appears on the display)<br>2. Set a universal timer to TP501(BEEP),adjust TC501 so that a reading of the meter is 0±0.1sec./day. | Universal timer |
| FM noise convergence | 1. Input a 98.1MHz/55dBμ(1kHz 30% MOD) signal.<br>2. Set an output level of VOL to 0dB(=1.41V).<br>3. Adjust VR101 so that the output is −14±1dB when SG output is set −20dBμ. | SSG<br>Milli volt meter |

## ■BLOCK DIAGRAM



# ■EXPLANATION OF IC

■ LC72366-9262 052-1129-00 AM/FM Radio & CD Controller

Outward Form

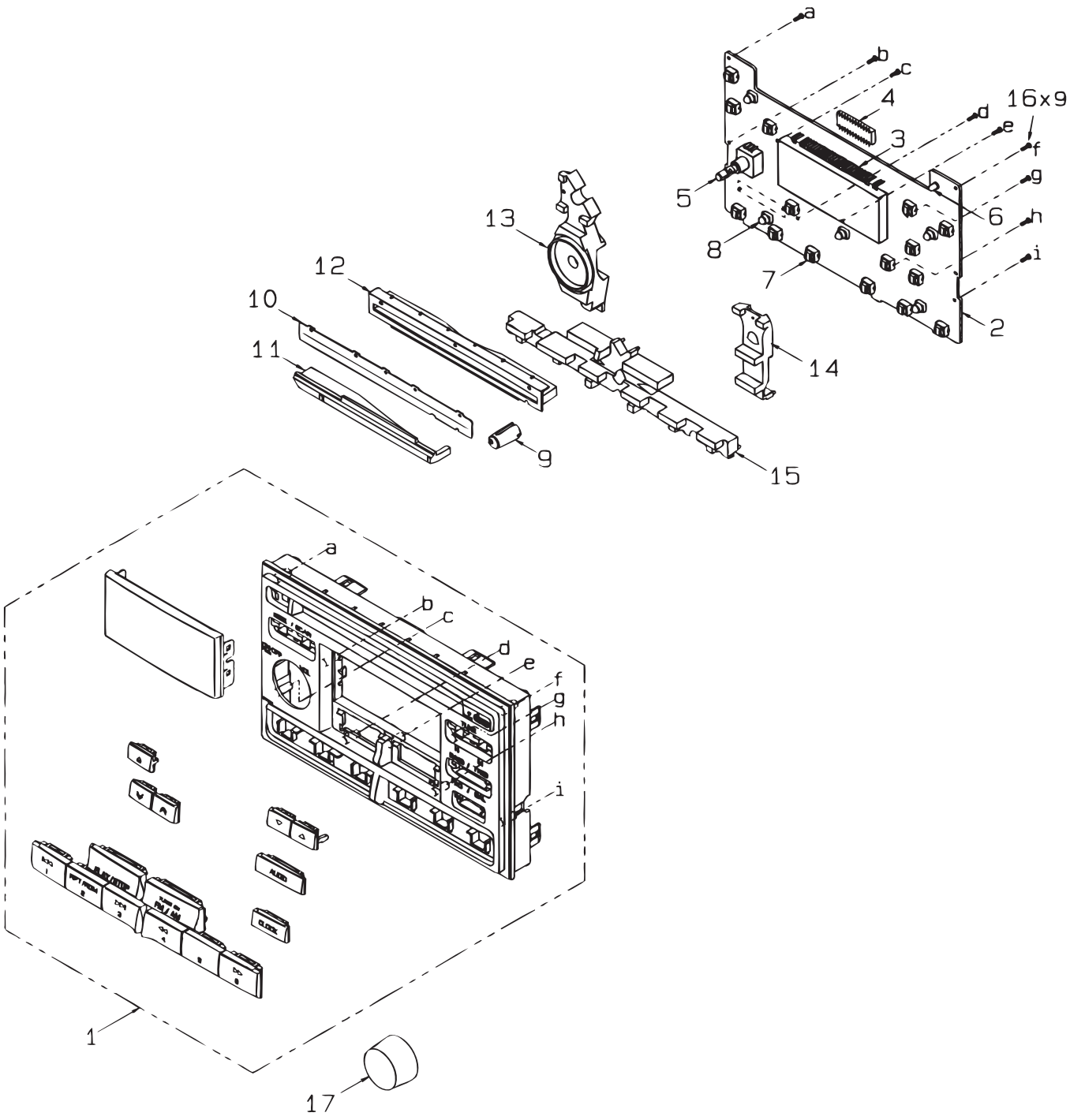
80 pins, plastic QFP

Terminal Description

| No. | Symbol | I/O | Function |
|---|---|---|---|
| 80<br>1 | X OUT<br>X IN | O<br>I | Crystal connection |
| 2<br>3 | TEST 2<br>N.C. | –<br>I | Not in use |
| 4 | $\overline{\text{LD-ON}}$ | O | "H" output when laser beam is ON |
| 5 | $\overline{\text{CHA-SW}}$ | I | "L" input when disc chucking is completed |
| 6<br>7 | MCW<br>MCCW | O | Loading motor control output |
| 8<br>9<br>10 | TR-C<br>TR-B<br>TR-A | I | Detection signal input of CD mechanism status |
| 11<br>12<br>13<br>14<br>15<br>16<br>17<br>18 | SQSO<br>SQCK<br>$\overline{\text{SENSE}}$<br>$\overline{\text{XRST}}$<br>CLOCK<br>XRAT<br>DATA<br>SCLK | I<br>O<br>I<br>O<br>O<br>O<br>O<br>O | Communication line between DSP IC (CDX2545) |
| 19<br>20<br>21<br>22 | KS-0<br>KS-1<br>KS-2<br>KS-3 | O | Key matrix output |
| 23<br>\<br>26 | N.C. | O | Not in use |
| 27<br>28<br>29<br>30 | KR-0<br>KR-1<br>KR-2<br>KR-3 | I | Key matrix input |
| 31 | VDD | – | Power supply terminal |
| 32 | $\overline{\text{EJECT-SW}}$ | I | EJET switch |
| 33<br>34<br>35<br>36 | FL DO<br>FL CLK<br>FL CE<br>$\overline{\text{FL BLK}}$ | O | Communication line to VFD driver IC |
| 37<br>38 | N.C. | O | Not in use |
| 39 | AM-ON | O | AM radio ON signal output |
| 40 | FM-ON | O | FM radio ON signal output |
| 41 | RADIO-ON | O | Radio ON signal output |
| 42 | FL-ON | O | Power supply circuit on signal output for fluoresent luminescent display |
| 43 | AF-MUTE | O | Audio mute signal output |
| 44 | BEEP | O | BBEP OUT (3.75kHz or 2.5 kHz) |
| 45<br>46 | $\overline{\text{VOL-1}}$<br>$\overline{\text{VOL-2}}$ | I | Rotation volume pulse detection terminal |
| 47 | $\overline{\text{POWER-SW}}$ | I | Power key input |
| 48 | N.C. | I | Not in use |
| 49 | AMP ON | O | AMP-ON signal output |
| 50 | COMBI-ON | O | COMBI-ON (REMOTE OUT) signal input |
| 51 | $\overline{\text{AUX-ON}}$ | I | AUX ON (REMOTE IN) signal input |
| 52<br>53 | VOL-CLK<br>VOL-DATA | O | Serial data communication line to electrical volume |
| 54 | RF-MUTE | O | AM/FM RF-MUTE signal output |
| 55 | SCOR | I | Input of sub code sync signal from DSP IC (CDX2545) |
| 56 | ILL-PULSE | I | Monitor input of motion of illumination controller |
| 57<br>58 | N.C. | O | Not in use |
| 59 | $\overline{\text{CD-ON}}$ | O | CD-ON signal output |
| 60 | $\overline{\text{SYS-ON}}$ | O | System ON signal output |
| 61 | ILL-DC | I | Input of luminance control switch of illumination |
| 62 | N.C. | I | Not in use |
| 63 | $\overline{\text{ILL-ON}}$ | I | Illumination ON signal input |
| 64 | TEMP | I | Sensing signal input of in-set temperature |
| 65 | CLK-INIT | I | Inputs "H" in this terminal if a set was with clock |
| 66 | $\overline{\text{ST}}$ | I | FM stereo detection signal input |
| 67 | $\overline{\text{HOLD}}$ | I | ACC detection input (ACC ON ="H") |
| 68 | $\overline{\text{SNS}}$ | I | Power voltage sensing input |
| 69 | AM-IN | I | AM universal counter input |
| 70 | FM-IN | I | FM universal counter input |
| 71<br>72 | EO 3<br>SUBPD | O | Not in use |
| 73 | VDD | – | Power supply terminal |
| 74 | AM-OSC | I | AM local oscillation input |
| 75 | FM-OSC | I | FM local oscillation input |
| 76 | VSS | – | GND |
| 77 | EO 2 | O | Not in use |
| 78 | EO 1 | O | Charge pump output (error out) |
| 79 | TEST 1 | – | Not in use |

# ■EXPLODED VIEW • PARTS LIST

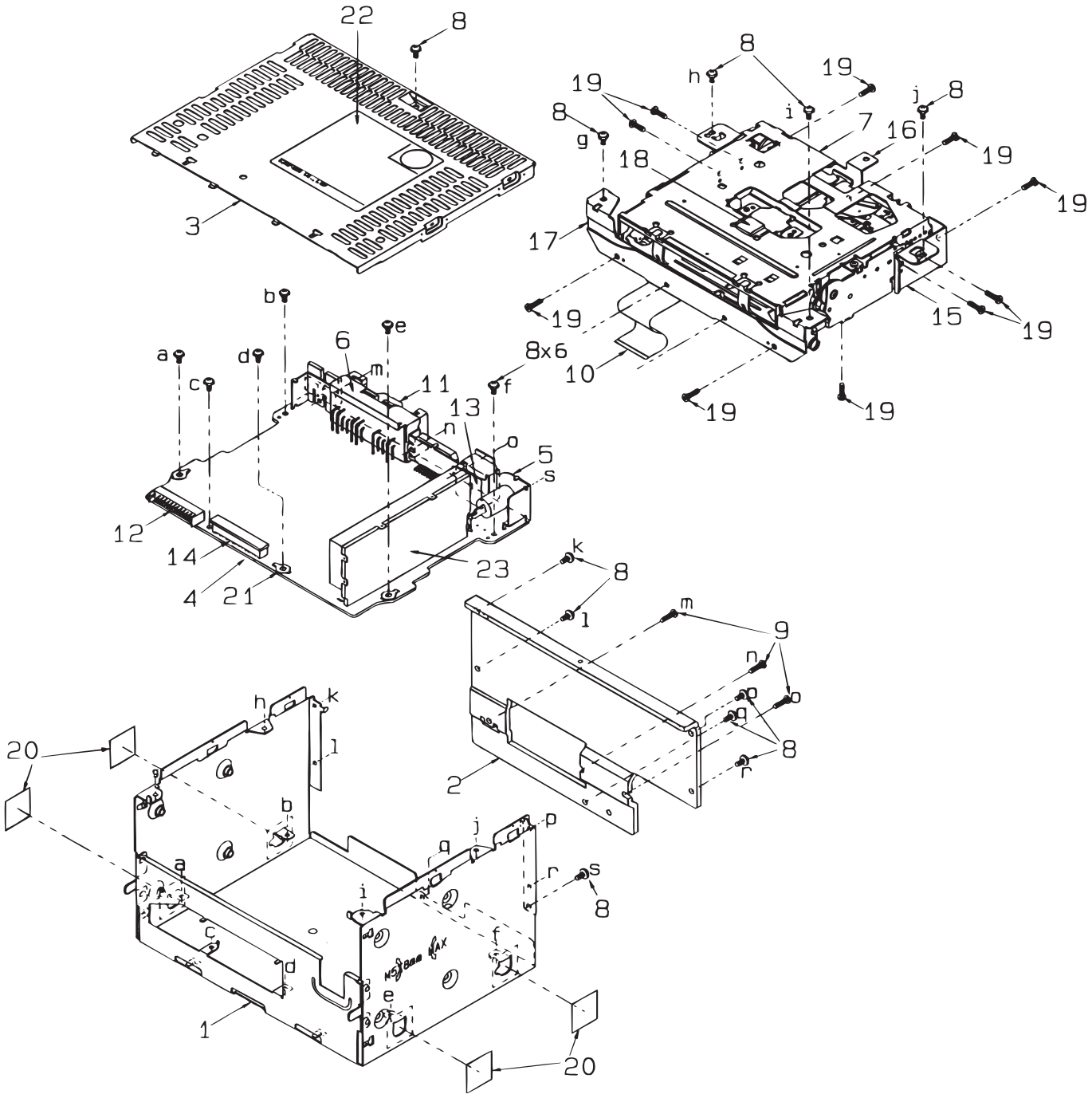
Escutcheon section




| NO. | PART NO. | DESCRIPTION | Q'TY |
|---|---|---|---|
| 1 | 940-7745-00 | ESCUTCHEON ASS'Y | 1 |
| 2 | 039-0881-00 | DISPLAY PWB | 1 |
| 3 | 379-4010-20 | INDICATOR | 1 |
| 4 | 074-1105-24 | SOCKET | 1 |
| 5 | 016-0010-06 | VARIABLE RESISTOR(MAIN) | 1 |
| 6 | 001-0412-18 | DIODE(CD-IND) | 1 |
| 7 | 013-3970-00 | SWITCH | 15 |
| 8 | 017-0428-09 | LAMP ASS'Y | 5 |
| 9 | 335-5114-00 | INDICATOR LENZ | 1 |

| NO. | PART NO. | DESCRIPTION | Q'TY |
|---|---|---|---|
| 10 | 346-0094-01 | LEATHER SEET | 1 |
| 11 | 335-5118-01 | ILLUMI(CD) | 1 |
| 12 | 335-5491-00 | DISC GUIDE | 1 |
| 13 | 335-5115-01 | ILLUMI(VOL) | 1 |
| 14 | 335-5116-01 | ILLUMI(B/T) | 1 |
| 15 | 335-5117-02 | ILLUMI(BUTTON) | 1 |
| 16 | 716-0872-00 | PAD SCREW(M1.7×5) | 9 |
| 17 | 380-5334-50 | KNOB(MAIN) | 1 |
| | | | |

Main section

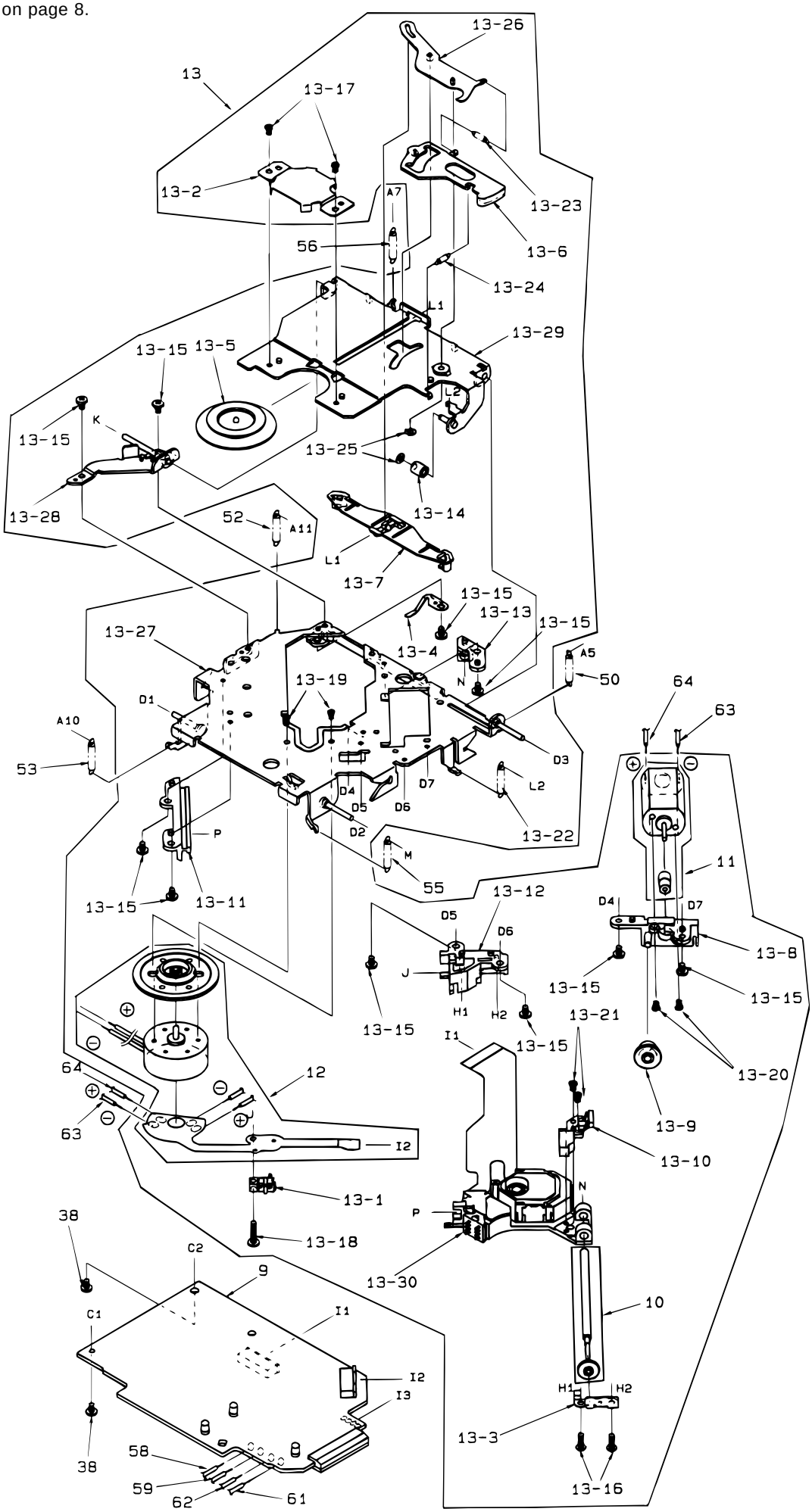


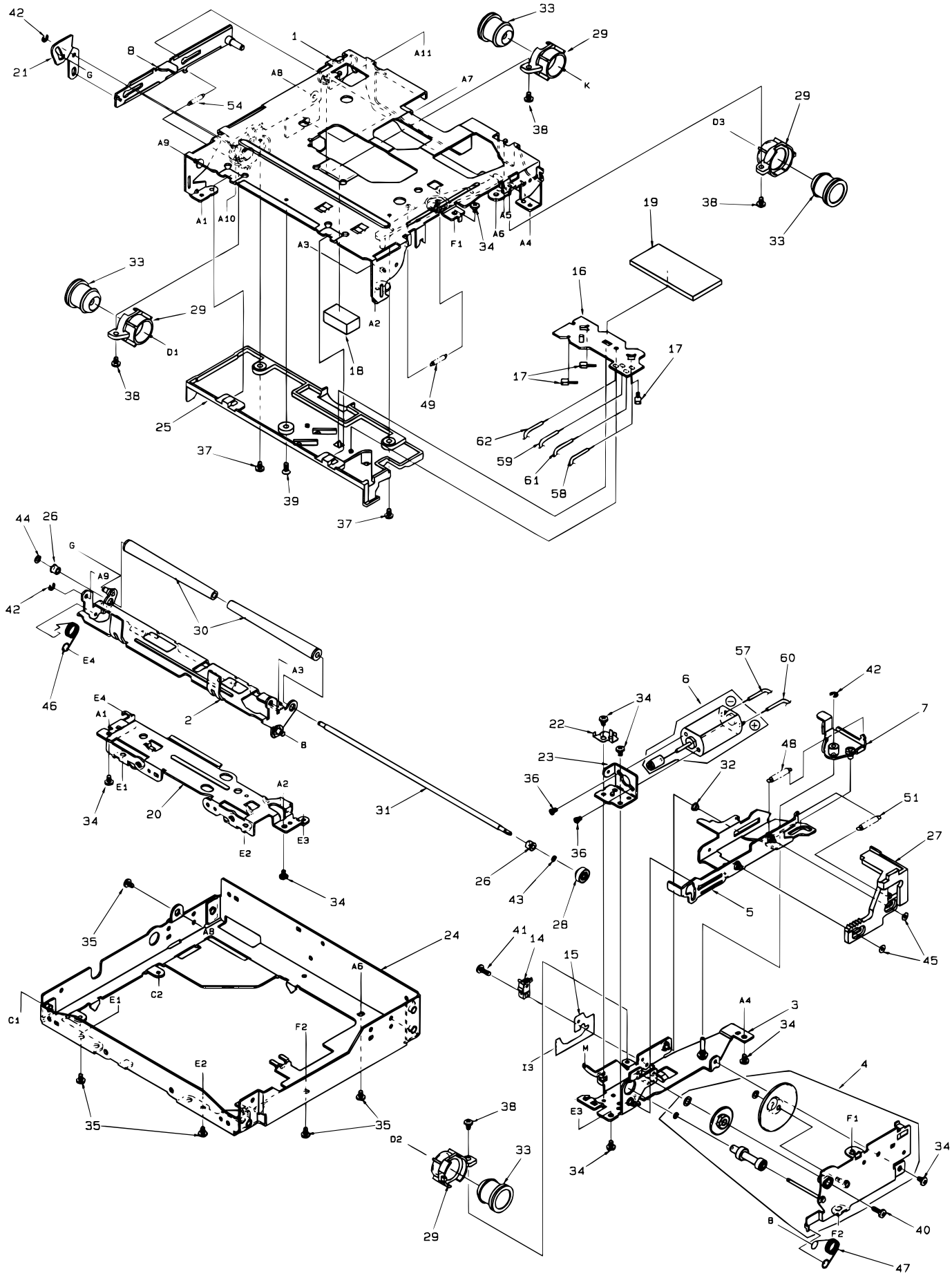

| NO. | PART NO. | DESCRIPTION | Q'TY |
|---|---|---|---|
| 1 | 311-1680-00 | LOWER CASE | 1 |
| 2 | 313-1663-00 | HEAT SINK | 1 |
| 3 | 310-1561-10 | UPPER CASE | 1 |
| 4 | 039-0880-02 | MAIN PWB | 1 |
| 5 | 331-1878-00 | ANT HOLDER | 1 |
| 6 | 331-1879-00 | TR HOLDER | 1 |
| 7 | 929-0065-81 | CD MECHANISM | 1 |
| 8 | 716-1494-10 | IT SCREW(M2.6×6) | 17 |
| 9 | 714-2612-81 | MECHINE SCREW(M2.6×12) | 3 |
| 10 | 816-2427-00 | FLAT CABLE | 1 |
| 11 | 074-1141-10 | OUTLET SOCKET | 1 |
| 12 | 076-0515-24 | PLUG | 1 |

| NO. | PART NO. | DESCRIPTION | Q'TY |
|---|---|---|---|
| 13 | 074-0850-08 | OUTLET SOCKET | 1 |
| 14 | 074-1150-26 | SOCKET | 1 |
| 15 | 300-9789-10 | MOUNTING BRACKET(R) | 1 |
| 16 | 300-9793-50 | MOUNTING BRACKET(REAR) | 1 |
| 17 | 300-9791-10 | MOUNTING BRACKET(FRON) | 1 |
| 18 | 345-4138-50 | SPACER | 1 |
| 19 | 714-2303-81 | MACHINE SCREW(M2.3×3) | 10 |
| 20 | 347-5309-00 | SHADE | 4 |
| 21 | 073-0731-01 | TERMINAL | 3 |
| 22 | 286-8765-00 | SETPLATE | 1 |
| 23 | 880-2079G | TUNER PACK | 1 |
| | | | |

CD mechanism section : 929-0065-81

※ Parts list on page 8.




42
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G
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A8
A7
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K
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A9
A1
A10
A5
A6
A4
F1
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A3
A2
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D3
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16
B1
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61
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D1
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A8
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C1
E1
C2
A6
F2
E2
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13
M
A4
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4
F1
B
F2
40
47
D2
29
-7-
PN-2218I

| NO. | PART NO. | DESCRIPTION | Q'TY |
|---|---|---|---|
| 1 | 966-0308-09 | CHASSIS ASS'Y | 1 |
| 2 | 966-0309-04 | L-DISC-G-ASS'Y | 1 |
| 3 | 966-0310-06 | SFT-P-CH-ASS'Y | 1 |
| 4 | HBS-430-100 | GEAR-SUB-ASS'Y | 1 |
| 5 | 966-0312-06 | SHIFT-P-ASS'Y | 1 |
| 6 | SMA-147-100 | MOTOR ASS'Y(LOADING) | 1 |
| 7 | 966-0358-01 | DRIVE-L-PL-ASS'Y | 1 |
| 8 | 966-0359-03 | SIDE-L-PL-ASS'Y | 1 |
| 9 | HBS-431-100 | PWB ASS'Y | 1 |
| 10 | HBS-432-100 | LS-GEAR ASS'Y | 1 |
| 11 | SMA-146-100 | MOTOR ASS'Y(SLED) | 1 |
| 12 | SMA-151-100 | MOTOR ASS'Y(SPINDLE) | 1 |
| 13 | HBS-433-100 | DRIVE UNIT | 1 |
| 13-1 | 013-7100-00 | LIMIT SWITCH | 1 |
| 13-2 | 620-0198-03 | CLAMPER PLATE | 1 |
| 13-3 | 620-0491-03 | SPRING PLATE | 1 |
| 13-4 | 620-0690-00 | RATTLE PLATE | 1 |
| 13-5 | 621-0205-02 | CLAMPER PLATE | 1 |
| 13-6 | 621-0251-03 | LOCK LINK | 1 |
| 13-7 | 621-0252-03 | DISC STOPPER | 1 |
| 13-8 | 621-0253-01 | MOTOR HOLDER | 1 |
| 13-9 | 621-0255-02 | SECOND GEAR | 1 |
| 13-10 | 621-0257-05 | SCREW HOLDER | 1 |
| 13-11 | 621-0357-02 | PICKUP GUIDE | 1 |
| 13-12 | 621-0358-02 | LS-HOLDER-F | 1 |
| 13-13 | 621-0359-02 | LS-HOLDER-R | 1 |
| 13-14 | 622-1073-02 | CLAMPER ROLLER | 1 |
| 13-15 | 714-2003-81 | MACHINE SCREW (M2X3) | 10 |
| 13-16 | 716-0675-00 | SCREW | 2 |
| 13-17 | 716-1468-00 | SCREW | 2 |
| 13-18 | 716-1555-00 | WAVE SCREW | 1 |
| 13-19 | 716-1733-00 | SCREW | 2 |
| 13-20 | 732-2004-11 | SEMS SCREW | 2 |
| 13-21 | 739-1735-17 | PRECISION SCREW | 2 |
| 13-22 | 750-3097-03 | CLAMPER SPRING | 1 |
| 13-23 | 750-3098-00 | L-LINK SPRING | 1 |
| 13-24 | 750-3099-00 | ES-SPRING | 1 |
| 13-25 | 746-0761-00 | WASHER | 2 |
| 13-26 | 966-0314-01 | STOP LINK ASS'Y | 1 |
| 13-27 | 966-0447-04 | DR-PLATE ASS'Y | 1 |
| 13-28 | 966-0448-00 | SIDE PLATE ASS'Y | 1 |
| 13-29 | 966-0449-00 | CLAMP LINK ASS'Y | 1 |
| 13-30 | 969-0005-00 | PICKUP UNIT ASS'Y | 1 |
| 14 | 013-3879-01 | CHUCKING SWITCH | 1 |
| 15 | 039-0586-01 | CHUCKING SW PWB | 1 |
| 16 | 039-0588-01 | SENSOR PWB | 1 |
| 17 | 060-0252-01 | PHOTO TR (PT4850F) | 3 |

| NO. | PART NO. | DESCRIPTION | Q'TY |
|---|---|---|---|
| 18 | 345-7513-01 | CLAMPER SHEET | 1 |
| 19 | 345-7514-00 | S-PEB-SHEET | 1 |
| 20 | 620-0485-03 | FRONT PLATE | 1 |
| 21 | 620-0488-01 | S-L-LINK PLATE | 1 |
| 22 | 620-0489-01 | MOTOR PLATE | 1 |
| 23 | 620-0492-01 | MOTOR BRACKET | 1 |
| 24 | 620-0697-01 | MECHA BRACKET | 1 |
| 25 | 621-0242-02 | U-DISC GUIDE | 1 |
| 26 | 621-0243-02 | ROLLER SLEEVE | 2 |
| 27 | 621-0248-06 | RACK GEAR | 1 |
| 28 | 621-0249-02 | ROLLER GEAR | 1 |
| 29 | 621-0250-01 | DAMPER HOLDER | 4 |
| 30 | 621-0258-03 | LOADING ROLLER | 2 |
| 31 | 622-1072-05 | ROLER SHAFT | 1 |
| 32 | 622-1219-01 | SHIFT ROLLER | 1 |
| 33 | 629-0058-00 | DAMPER-DL | 4 |
| 34 | 714-2003-81 | MACHINE SCREW(M2X3) | 8 |
| 35 | 714-2603-81 | MACHINE SCREW(M2.6X3) | 5 |
| 36 | 716-1468-00 | SCREW | 2 |
| 37 | 716-1507-00 | SCREW | 2 |
| 38 | 716-1670-00 | SCREW | 6 |
| 39 | 716-1677-00 | SCREW | 1 |
| 40 | 716-1704-00 | SCREW | 1 |
| 41 | 716-1742-00 | SCREW | 1 |
| 42 | 743-1500-10 | E-RING | 3 |
| 43 | 746-0712-03 | WASHER | 1 |
| 44 | 746-0762-00 | WASHER | 1 |
| 45 | 746-0877-02 | WASHER | 2 |
| 46 | 750-3090-02 | RO-SPRING-L | 1 |
| 47 | 750-3091-03 | RO-SPRING-R | 1 |
| 48 | 750-3092-03 | SHIFT SPRING | 1 |
| 49 | 750-3094-00 | S-ARM SPRING | 1 |
| 50 | 750-3096-01 | DR-SPRING-R | 1 |
| 51 | 750-3098-00 | L-LINK SPRING | 1 |
| 52 | 750-3164-00 | DR-SPRING-LR | 1 |
| 53 | 750-3188-00 | DR-SP-F-B | 1 |
| 54 | 750-3189-00 | SIDE-L-SPRING | 1 |
| 55 | 750-3201-00 | DR-SPRING-F-R | 1 |
| 56 | 750-3202-00 | CENTER SPRING-B | 1 |
| 57 | 800-4904-60 | VINYL COAT WIRE(BLK) | 1 |
| 58 | 800-4910-60 | VINYL COAT WIRE(BLK) | 1 |
| 59 | 801-4910-60 | VINYL COAT WIRE(BRN) | 1 |
| 60 | 802-4904-60 | VINYL COAT WIRE(RED) | 1 |
| 61 | 802-4910-60 | VINYL COAT WIRE(RED) | 1 |
| 62 | 804-4910-60 | VINYL COAT WIRE(YEL) | 1 |
| 63 | 816-2372-00 | VINYL COAT WIRE(BLU) | 1 |
| 64 | 816-2373-00 | VINYL COAT WIRE(WHT) | 1 |

# ■ELECTRICAL PARTS LIST

Note) Several different parts of the same reference number are alternative parts. One of those parts is used in the set.

## Display PWB section

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| C 901 | 043-0206-63 | 0.022μF |
| C 902 | 043-0206-61 | 0.1μF |
| C 903 | 043-0206-63 | 0.022μF |
| C 904 | 043-0206-28 | 47pF CH |
| C 905 | 043-0206-61 | 0.1μF |
| D 901 | 001-0412-18 | GL-3EG8 |
| IC 901 | 051-6011-00 | LC75741E |
| L 951 | 010-2230-76 | 22μH |
| PL 901 | 017-0428-09 | |
| PL 902 | 017-0428-09 | |
| PL 903 | 017-0428-09 | |
| PL 904 | 017-0428-09 | |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| PL 905 | 017-0428-09 | |
| Q 901 | 125-2016-01 | DTC114EL |
| Q 902 | 125-0012-01 | DTA114EL |
| Q 903 | 125-2016-01 | DTC114EL |
| R 901 | 111-1811-91 | 1/4WS 180Ω |
| R 902 | 111-1831-91 | 1/4WS 18kΩ |
| R 950 | 111-1041-91 | 1/4WS 100kΩ |
| S 901 | 013-3970-00 | SKPEAA |
| S 902 | 013-3970-00 | SKPEAA |
| S 903 | 013-3970-00 | SKPEAA |
| S 904 | 013-3970-00 | SKPEAA |
| S 905 | 013-3970-00 | SKPEAA |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| S 906 | 013-3970-00 | SKPEAA |
| S 907 | 013-3970-00 | SKPEAA |
| S 908 | 013-3970-00 | SKPEAA |
| S 909 | 013-3970-00 | SKPEAA |
| S 910 | 013-3970-00 | SKPEAA |
| S 911 | 013-3970-00 | SKPEAA |
| S 912 | 013-3970-00 | SKPEAA |
| S 913 | 013-3970-00 | SKPEAA |
| S 914 | 013-3970-00 | SKPEAA |
| S 915 | 013-3970-00 | SKPEAA |
| VR 902 | 016-0010-06 | |

## Main PWB section

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| C 110 | 043-0277-01 | 0.022μF |
| C 111 | 178-1035-79 | 0.01μF |
| C 112 | 182-1063-32 | 16V10μF |
| C 116 | 182-1063-32 | 16V10μF |
| C 117 | 171-2232-06 | 0.022μF Y5R K |
| C 119 | 178-3932-78 | 0.039μF |
| C 120 | 178-3932-78 | 0.039μF |
| C 121 | 178-8232-78 | 0.082μF |
| C 122 | 178-2242-78 | 0.22μF |
| C 123 | 184-1073-22 | 10V100μF |
| C 124 | 176-1501-00 | 15pF CH |
| C 125 | 178-1045-79 | 0.1μF |
| C 130 | 178-1022-78 | 1000pF |
| C 131 | 178-1022-78 | 1000pF |
| C 132 | 178-1022-78 | 1000pF |
| C 133 | 178-1022-78 | 1000pF |
| C 151 | 181-1053-61 | 50V1μF |
| C 152 | 178-1022-78 | 1000pF |
| C 201 | 178-1045-79 | 0.1μF |
| C 202 | 182-1063-32 | 16V10μF |
| C 203 | 182-1063-32 | 16V10μF |
| C 204 | 176-1011-00 | 100pF CH |
| C 205 | 176-1011-00 | 100pF CH |
| C 207 | 182-3353-62 | 50V3.3μF |
| C 208 | 182-4743-62 | 50V0.47μF |
| C 209 | 182-4743-62 | 50V0.47μF |
| C 210 | 182-3353-62 | 50V3.3μF |
| C 212 | 182-1053-62 | 50V1μF |
| C 213 | 182-1053-62 | 50V1μF |
| C 216 | 178-5632-78 | 0.056μF |
| C 217 | 178-5632-78 | 0.056μF |
| C 218 | 178-5622-78 | 5600pF |
| C 219 | 178-5622-78 | 5600pF |
| C 220 | 182-4763-22 | 10V47μF |
| C 221 | 178-5622-78 | 5600pF |
| C 222 | 178-5622-78 | 5600pF |
| C 223 | 182-1063-32 | 16V10μF |
| C 224 | 182-1063-32 | 16V10μF |
| C 225 | 178-4735-79 | 0.047μF |
| C 226 | 184-1083-12 | 10V1000μF |
| C 227 | 172-1041-11 | 0.1μF |
| C 228 | 172-1041-11 | 0.1μF |
| C 229 | 172-1041-11 | 0.1μF |
| C 230 | 172-1041-11 | 0.1μF |
| C 237 | 178-5612-78 | 560pF |
| C 238 | 178-5612-78 | 560pF |
| C 250 | 182-1063-32 | 16V10μF |
| C 251 | 182-1063-32 | 16V10μF |
| C 301 | 184-3383-32 | 16V3300μF |
| C 302 | 182-1053-62 | 50V1μF |
| C 307 | 182-4753-52 | 35V4.7μF |
| C 312 | 182-4763-32 | 16V47μF |
| C 313 | 172-1041-11 | 0.1μF |
| C 401 | 182-1063-32 | 16V10μF |
| C 402 | 182-1063-32 | 16V10μF |
| C 403 | 182-1063-32 | 16V10μF |
| C 404 | 182-1063-32 | 16V10μF |
| C 405 | 176-5096-00 | 5pF CH |
| C 406 | 176-5096-00 | 5pF CH |
| C 407 | 176-5096-00 | 5pF CH |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| C 408 | 176-5096-00 | 5pF CH |
| C 501 | 171-1042-06 | 0.1μF Y5R K |
| C 502 | 178-1045-79 | 0.1μF |
| C 503 | 182-4763-12 | 6.3V47μF |
| C 505 | 176-1011-00 | 100pF CH |
| C 506 | 176-1011-00 | 100pF CH |
| C 507 | 176-1011-00 | 100pF CH |
| C 508 | 176-1011-00 | 100pF CH |
| C 509 | 176-2201-00 | 22pF CH |
| C 510 | 178-1022-78 | 1000pF |
| C 530 | 178-1022-78 | 1000pF |
| C 531 | 178-1022-78 | 1000pF |
| C 601 | 172-1041-11 | 0.1μF |
| C 603 | 182-2263-32 | 16V22μF |
| C 613 | 182-1063-32 | 16V10μF |
| C 614 | 172-1041-11 | 0.1μF |
| C 615 | 178-1045-79 | 0.1μF |
| C 616 | 182-1063-32 | 16V10μF |
| C 701 | 182-4763-22 | 10V47μF |
| C 702 | 182-1063-32 | 16V10μF |
| C 703 | 182-1063-32 | 16V10μF |
| C 704 | 182-1063-32 | 16V10μF |
| C 705 | 178-4735-79 | 0.047μF |
| C 706 | 182-4763-12 | 6.3V47μF |
| C 707 | 178-1045-79 | 0.1μF |
| C 708 | 182-4753-52 | 35V4.7μF |
| C 709 | 182-4753-52 | 35V4.7μF |
| C 710 | 178-1045-79 | 0.1μF |
| C 711 | 184-4773-12 | 6.3V470μF |
| C 712 | 178-1045-79 | 0.1μF |
| C 713 | 178-1022-78 | 1000pF |
| C 714 | 184-2273-22 | 10V220μF |
| D 602 | 001-0334-30 | RL202 |
| D 603 | 001-0466-00 | S5688B |
| D 603 | 001-0626-00 | 1A2 |
| D 604 | 001-0376-34 | MTZJ6.2A |
| D 604 | 001-0377-34 | MA4062L |
| D 605 | 001-0294-00 | 1SS133 |
| D 605 | 001-0330-00 | 1SS119 |
| D 701 | 001-0376-49 | MTZJ10A |
| D 701 | 001-0377-48 | MA4091H |
| D 702 | 001-0503-31 | HZS6 A2L |
| D 702 | 001-4200-31 | UZL-6LA1 |
| D 703 | 001-0294-00 | 1SS133 |
| D 703 | 001-0330-00 | 1SS119 |
| D 704 | 001-0503-45 | HZS9B1L |
| D 704 | 001-4200-45 | UZL-9M1 |
| D 705 | 001-0503-31 | HZS6 A2L |
| D 705 | 001-4200-31 | UZL-6LA1 |
| D 709 | 001-0294-00 | 1SS133 |
| D 709 | 001-0330-00 | 1SS119 |
| D 710 | 001-0346-14 | MTZJ T-77 3.0A |
| D 710 | 001-0377-11 | MA4030M |
| D 711 | 001-0376-70 | MTZJ18C |
| D 711 | 001-0377-69 | MA4180M |
| IC 201 | 051-5008-00 | M62419FP |
| IC 301 | 051-2013-00 | TDA7385 |
| IC 401 | 051-0422-51 | NJM4558D |
| IC 501 | 052-1129-00 | LC72366-9262 |
| L 103 | 010-2230-64 | 2.2μH |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| L 104 | 010-2003-04 | |
| L 501 | 010-2230-64 | 2.2μH |
| L 601 | 009-0670-00 | |
| Q 151 | 100-1048-00 | 2SA1048 |
| Q 151 | 100-1175-00 | 2SA1175 |
| Q 152 | 125-2003-02 | RN1202 |
| Q 152 | 125-2007-01 | DTC114ES |
| Q 153 | 100-1048-00 | 2SA1048 |
| Q 153 | 100-1175-00 | 2SA1175 |
| Q 154 | 125-2003-02 | RN1202 |
| Q 154 | 125-2007-01 | DTC114ES |
| Q 155 | 102-2458-51 | 2SC2458Y.GR.BL |
| Q 156 | 102-2458-51 | 2SC2458Y.GR.BL |
| Q 401 | 125-2003-02 | RN1202 |
| Q 401 | 125-2007-01 | DTC114ES |
| Q 501 | 125-0003-02 | RN2202 |
| Q 501 | 125-0004-01 | DTA114ES |
| Q 502 | 102-2458-00 | 2SC2458 |
| Q 503 | 125-0003-02 | RN2202 |
| Q 503 | 125-0004-01 | DTA114ES |
| Q 504 | 125-2003-02 | RN1202 |
| Q 504 | 125-2007-01 | DTC114ES |
| Q 601 | 125-2003-02 | RN1202 |
| Q 601 | 125-2007-01 | DTC114ES |
| Q 602 | 125-2003-03 | RN1203 |
| Q 602 | 125-2007-02 | DTC124ES |
| Q 701 | 103-1858-00 | 2SD1858 |
| Q 702 | 103-1858-00 | 2SD1858 |
| Q 703 | 103-1858-00 | 2SD1858 |
| Q 704 | 103-1858-00 | 2SD1858 |
| Q 705 | 101-1240-00 | 2SB1240 |
| Q 706 | 125-2003-02 | RN1202 |
| Q 706 | 125-2007-01 | DTC114ES |
| Q 707 | 100-1048-00 | 2SA1048 |
| Q 707 | 100-1175-00 | 2SA1175 |
| Q 708 | 100-1048-00 | 2SA1048 |
| Q 708 | 100-1175-00 | 2SA1175 |
| Q 709 | 103-2012-00 | 2SD2012 |
| Q 710 | 103-1858-00 | 2SD1858 |
| Q 711 | 125-0003-02 | RN2202 |
| Q 711 | 125-0004-01 | DTA114ES |
| Q 712 | 125-2003-02 | RN1202 |
| Q 712 | 125-2007-01 | DTC114ES |
| Q 713 | 125-0003-02 | RN2202 |
| Q 713 | 125-0004-01 | DTA114ES |
| Q 714 | 125-2003-02 | RN1202 |
| Q 714 | 125-2007-01 | DTC114ES |
| Q 715 | 103-2012-00 | 2SD2012 |
| Q 716 | 125-2003-02 | RN1202 |
| Q 716 | 125-2007-01 | DTC114ES |
| Q 717 | 125-2003-02 | RN1202 |
| Q 717 | 125-2007-01 | DTC114ES |
| Q 718 | 125-2003-02 | RN1202 |
| Q 718 | 125-2007-01 | DTC114ES |
| Q 719 | 103-1858-00 | 2SD1858 |
| R 110 | 111-2291-91 | 1/4WS 2.2Ω |
| R 111 | 117-2221-10 | 1/10W 2.2kΩ |
| R 114 | 111-4791-91 | 1/4WS 4.7Ω |
| R 117 | 111-2221-91 | 1/4WS 2.2kΩ |
| R 118 | 117-1031-10 | 1/10W 10kΩ |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| R 122 | 117-1231-10 | 1/10W 12kΩ |
| R 123 | 117-6831-10 | 1/10W 68kΩ |
| R 151 | 117-2221-10 | 1/10W 2.2kΩ |
| R 152 | 117-1031-10 | 1/10W 10kΩ |
| R 153 | 117-1031-10 | 1/10W 10kΩ |
| R 154 | 117-2221-10 | 1/10W 2.2kΩ |
| R 155 | 111-4721-91 | 1/4WS 4.7kΩ |
| R 156 | 117-3321-10 | 1/10W 3.3kΩ |
| R 157 | 117-2221-10 | 1/10W 2.2kΩ |
| R 201 | 117-2731-10 | 1/10W 27kΩ |
| R 202 | 117-2731-10 | 1/10W 27kΩ |
| R 203 | 117-3321-10 | 1/10W 3.3kΩ |
| R 204 | 117-3321-10 | 1/10W 3.3kΩ |
| R 205 | 117-4721-10 | 1/10W 4.7kΩ |
| R 206 | 117-4721-10 | 1/10W 4.7kΩ |
| R 207 | 117-1231-10 | 1/10W 12kΩ |
| R 208 | 117-1231-10 | 1/10W 12kΩ |
| R 209 | 117-1531-10 | 1/10W 15kΩ |
| R 210 | 117-1531-10 | 1/10W 15kΩ |
| R 211 | 111-1021-91 | 1/4WS 1kΩ |
| R 212 | 111-1021-91 | 1/4WS 1kΩ |
| R 213 | 117-3331-10 | 1/10W 33kΩ |
| R 214 | 117-3331-10 | 1/10W 33kΩ |
| R 215 | 111-3331-91 | 1/4WS 33kΩ |
| R 216 | 117-3331-10 | 1/10W 33kΩ |
| R 217 | 117-1051-10 | 1/10W 1MΩ |
| R 218 | 117-1051-10 | 1/10W 1MΩ |
| R 219 | 117-1821-10 | 1/10W 1.8kΩ |
| R 220 | 111-1031-91 | 1/4WS 10kΩ |
| R 301 | 111-1031-91 | 1/4WS 10kΩ |
| R 306 | 111-8221-91 | 1/4WS 8.2kΩ |
| R 307 | 117-2221-10 | 1/10W 2.2kΩ |
| R 401 | 111-4731-91 | 1/4WS 47kΩ |
| R 402 | 111-4711-81 | 1/2WS 470Ω |
| R 403 | 117-3011-10 | 1/10W 300Ω |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| R 404 | 117-3011-10 | 1/10W 300Ω |
| R 405 | 032-0106-65 | 1/10W 100kΩ± 0.5% |
| R 406 | 032-0106-65 | 1/10W 100kΩ± 0.5% |
| R 407 | 032-0106-65 | 1/10W 100kΩ± 0.5% |
| R 408 | 032-0106-65 | 1/10W 100kΩ± 0.5% |
| R 409 | 032-0106-63 | 1/10W 47kΩ±0.5% |
| R 410 | 032-0106-63 | 1/10W 47kΩ±0.5% |
| R 411 | 032-0106-63 | 1/10W 47kΩ±0.5% |
| R 412 | 032-0106-63 | 1/10W 47kΩ±0.5% |
| R 501 | 032-0092-18 | 1/10W 4.7kΩ±1% |
| R 503 | 117-2231-10 | 1/10W 22kΩ |
| R 504 | 117-1031-10 | 1/10W 10kΩ |
| R 505 | 117-1031-10 | 1/10W 10kΩ |
| R 506 | 117-4731-10 | 1/10W 47kΩ |
| R 507 | 117-1041-10 | 1/10W 100kΩ |
| R 508 | 117-1041-10 | 1/10W 100kΩ |
| R 509 | 117-1041-10 | 1/10W 100kΩ |
| R 512 | 117-4731-10 | 1/10W 47kΩ |
| R 513 | 111-4731-91 | 1/4WS 47kΩ |
| R 514 | 117-1031-10 | 1/10W 10kΩ |
| R 515 | 117-1031-10 | 1/10W 10kΩ |
| R 517 | 117-4731-10 | 1/10W 47kΩ |
| R 519 | 117-1031-10 | 1/10W 10kΩ |
| R 530 | 111-1041-91 | 1/4WS 100kΩ |
| R 531 | 111-1021-91 | 1/4WS 1kΩ |
| R 601 | 111-4731-91 | 1/4WS 47kΩ |
| R 602 | 111-2291-81 | 1/2WS 2.2Ω |
| R 603 | 117-2231-10 | 1/10W 22kΩ |
| R 604 | 117-4721-10 | 1/10W 4.7kΩ |
| R 605 | 111-1021-91 | 1/4WS 1kΩ |
| R 700 | 117-1041-10 | 1/10W 100kΩ |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| R 701 | 111-2291-91 | 1/4WS 2.2Ω |
| R 702 | 111-2291-91 | 1/4WS 2.2Ω |
| R 703 | 111-2291-91 | 1/4WS 2.2Ω |
| R 704 | 111-2291-91 | 1/4WS 2.2Ω |
| R 705 | 111-4711-91 | 1/4WS 470Ω |
| R 706 | 111-2211-91 | 1/4WS 220Ω |
| R 707 | 111-1021-91 | 1/4WS 1kΩ |
| R 708 | 117-1041-10 | 1/10W 100kΩ |
| R 709 | 117-2231-10 | 1/10W 22kΩ |
| R 710 | 111-3321-91 | 1/4WS 3.3kΩ |
| R 711 | 117-1031-10 | 1/10W 10kΩ |
| R 712 | 117-3321-10 | 1/10W 3.3kΩ |
| R 713 | 117-1031-10 | 1/10W 10kΩ |
| R 714 | 111-3911-91 | 1/4WS 390Ω |
| R 715 | 117-1041-10 | 1/10W 100kΩ |
| R 716 | 117-1531-10 | 1/10W 15kΩ |
| R 718 | 117-1041-10 | 1/10W 100kΩ |
| R 720 | 111-1011-91 | 1/4WS 100Ω |
| R 721 | 111-2231-91 | 1/4WS 22kΩ |
| R 722 | 117-4721-10 | 1/10W 4.7kΩ |
| R 723 | 111-4711-81 | 1/2WS 470Ω |
| R 724 | 111-4721-91 | 1/4WS 4.7kΩ |
| R 725 | 117-4721-10 | 1/10W 4.7kΩ |
| R 726 | 117-4731-10 | 1/10W 47kΩ |
| R 727 | 117-4731-10 | 1/10W 47kΩ |
| R 728 | 111-4731-91 | 1/4WS 47kΩ |
| R 729 | 117-4731-10 | 1/10W 47kΩ |
| R 730 | 117-1021-10 | 1/10W 1kΩ |
| R 731 | 111-1031-91 | 1/4WS 10kΩ |
| SUP 101 | 060-0122-10 | DSP-201M-S00B |
| TC 501 | 004-1580-10 | 30pF GRN |
| TH 501 | 002-0214-05 | DTN-T204C104K |
| VR 101 | 012-5203-58 | 33kΩ |
| X 501 | 061-1064-00 | 4.5MHz |

## Mech PWB section(CD mechanism)

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| C 10 | 178-1032-78 | 0.01μF |
| C 11 | 182-1063-32 | 16V10μF |
| C 12 | 178-1042-78 | 0.1μF |
| C 13 | 182-1073-12 | 6.3V100μF |
| C 14 | 178-1032-78 | 0.01μF |
| C 15 | 182-2263-12 | 6.3V22μF |
| C 16 | 178-1032-78 | 0.01μF |
| C 17 | 178-1042-78 | 0.1μF |
| C 18 | 178-1042-78 | 0.1μF |
| C 19 | 176-1501-00 | 15pF CH |
| C 20 | 178-1042-78 | 0.1μF |
| C 21 | 182-2263-12 | 6.3V22μF |
| C 22 | 176-2096-00 | 2pF CJ |
| C 23 | 178-1042-78 | 0.1μF |
| C 24 | 178-1022-78 | 1000pF |
| C 25 | 176-1007-00 | 10pF CH |
| C 26 | 176-1007-00 | 10pF CH |
| C 27 | 182-1073-12 | 6.3V100μF |
| C 28 | 178-1042-78 | 0.1μF |
| C 29 | 182-1073-12 | 6.3V100μF |
| C 30 | 178-1042-78 | 0.1μF |
| C 31 | 176-1007-00 | 10pF CH |
| C 32 | 178-2212-78 | 220pF |
| C 33 | 178-1042-78 | 0.1μF |
| C 34 | 178-2212-78 | 220pF |
| C 35 | 178-1032-78 | 0.01μF |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| C 36 | 178-4732-78 | 0.047μF |
| C 37 | 178-1522-78 | 1500pF |
| C 38 | 178-1032-78 | 0.01μF |
| C 39 | 042-0230-00 | 35V0.47μF |
| C 40 | 178-1032-78 | 0.01μF |
| C 41 | 178-1042-78 | 0.1μF |
| C 42 | 178-2222-78 | 2200pF |
| C 100 | 182-4763-12 | 6.3V47μF |
| C 101 | 182-4763-12 | 6.3V47μF |
| C 102 | 178-1032-78 | 0.01μF |
| C 103 | 182-1073-32 | 16V100μF |
| D 1 | 001-0563-00 | GL380 |
| D 2 | 001-0563-00 | GL380 |
| D 3 | 001-0563-00 | GL380 |
| IC 1 | 051-1014-10 | TA7291S |
| IC 2 | 051-6015-05 | BA6392FP |
| IC 3 | 051-6314-05 | TC9404FN |
| IC 4 | 051-1971-00 | CXA1610M |
| IC 5 | 051-6313-00 | CXD2545Q |
| L 1 | 010-2155-03 | 10μH |
| L 2 | 010-2155-03 | 10μH |
| L 3 | 010-2155-03 | 10μH |
| Q 1 | 101-1237-00 | 2SB1237 |
| R 10 | 111-2711-91 | 1/4WS 270Ω |
| R 11 | 117-8231-10 | 1/10W 82kΩ |
| R 12 | 117-1031-10 | 1/10W 10kΩ |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| R 14 | 117-5631-10 | 1/10W 56kΩ |
| R 15 | 117-1021-10 | 1/10W 1kΩ |
| R 16 | 117-2211-10 | 1/10W 220Ω |
| R 17 | 117-2211-10 | 1/10W 220Ω |
| R 18 | 117-1031-10 | 1/10W 10kΩ |
| R 19 | 117-2231-10 | 1/10W 22kΩ |
| R 20 | 117-1831-10 | 1/10W 18kΩ |
| R 21 | 117-1031-10 | 1/10W 10kΩ |
| R 22 | 117-4711-10 | 1/10W 470Ω |
| R 23 | 117-1011-10 | 1/10W 100Ω |
| R 24 | 117-1021-10 | 1/10W 1kΩ |
| R 25 | 117-1001-10 | 1/10W 10Ω |
| R 26 | 117-3331-10 | 1/10W 33kΩ |
| R 27 | 117-3631-10 | 1/10W 36kΩ |
| R 28 | 117-1241-10 | 1/10W 120kΩ |
| R 29 | 117-3631-10 | 1/10W 36kΩ |
| R 30 | 117-1041-10 | 1/10W 100kΩ |
| R 31 | 117-1031-10 | 1/10W 10kΩ |
| R 32 | 117-6821-10 | 1/10W 6.8kΩ |
| R 33 | 117-3321-10 | 1/10W 3.3kΩ |
| R 34 | 117-1051-10 | 1/10W 1MΩ |
| R 35 | 117-1041-10 | 1/10W 100kΩ |
| R 36 | 117-1031-10 | 1/10W 10kΩ |
| X 1 | 060-1014-00 | 16.9344MHz |

## Limit switch PWB section(CD mechanism)

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| M 1 | SMA-151-100 | SPINDLE |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| M 2 | SMA-146-100 | SLED |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| S 1 | 013-7100-00 | limit |

## Chucking switch PWB section(CD mechanism)

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| M 3 | SMA-147-100 | LOADING |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| S 2 | 013-3879-01 | CHUCKING |

## Sensor PWB section(CD mechanism)

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| Q 101 | 060-0252-01 | PT4850F |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| Q 102 | 060-0252-01 | PT4850F |

| REF No. | PART No. | DESCRIPTION |
|---|---|---|
| Q 103 | 060-0252-01 | PT4850F |